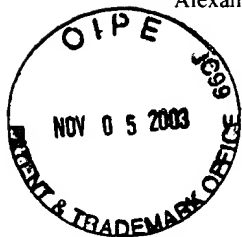


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Date: November 3, 2003  
Signature: Mary Forcier  
Name: MARY FORCIER



LC-355/PCT/US  
PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
Steven J. Hemsén ) : Examiner: R. Blanton  
Application No.: 09/719,546 ) :  
Filed: December 22, 2000 ) : Group Art Unit: 1762  
For: MOBILE VESSEL METHOD AND ) :  
SYSTEM FOR IMPREGNATING ) :  
POROUS ARTICLES ) : Confirmation No.: 9980  
November 3, 2003

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Mail Stop: Appeal Brief -- Patents

BRIEF ON APPEAL

Sir:

This Brief on Appeal is filed in the subject  
application, in which Claims 1 to 24 and 27 to 35 were finally  
rejected in an Office Action mailed July 15, 2003. This Brief  
is filed within two months of the Notice of Appeal dated  
September 2, 2003. The fee of \$310.00 required under 37  
C.F.R. § 1.17(c) may be charged to Deposit Account No. 12-  
2135.

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This Brief is filed in triplicate in accordance with  
37 C.F.R. § 1.192(a).

**1. Real Party In Interest**

The application is assigned to Henkel Loctite Corporation (formerly, Loctite Corporation), a Delaware corporation with its principle offices at Rocky Hill, Connecticut, USA. Henkel Loctite Corporation is jointly owned by Henkel KGaA, a German company and Henkel Corporation of America, a Delaware corporation. Henkel Corporation of America is itself wholly owned by Henkel KGaA.

**2. Related Appeals And Interferences**

At present there are no related appeals or interferences pending.

**3. Status Of Claims**

Claims 1-41 were filed in this application. Claims 25, 26 and 36 to 41 have been cancelled. The claims on appeal are thus 1 to 24 and 27 to 35.

**4. Status Of Amendments**

Subsequent to the final rejection, Claim 9 was amended and Claims 25 and 26 were cancelled. Appellant understands that the Amendment After Final Rejection dated

July 31, 2003 has been entered, as noted in the Advisory Action mailed August 15, 2003.

## **5. Summary Of The Invention**

The invention is defined by the claims on appeal, which are directed to an impregnation process, the steps of which comprise:

a.) providing at least one mobile vessel in which impregnation of a porous article can be carried out, with the vessel including a chamber for containing a flowable polymerizable impregnating composition and at least one porous article to be impregnated;

b.) providing a series of stations defining a selection of impregnation sequences, with each of the stations performing at least one specific impregnation step on each porous article within the vessel, where the series of stations are selected from an impregnating composition addition station, a vacuum station, a pressure station, a centrifuge station, a reclaiming station, a retrieval station and combinations thereof;

c.) sequentially directing each vessel to at least one selected station chosen from the series of stations;

d.) performing the impregnation step at one selected station; and

e.) providing a polymerization step to polymerize the impregnating composition within the pores of the porous article.

Also claimed is a system for carrying out Appellant's process.

## **6. Issue**

Whether Claims 1 to 24 and 27 to 35 are unpatentable under 35 U.S.C. § 103(a) as allegedly being obvious over the admitted state of the art in view of Kerns et al. (U.S. Patent No. 3,529,320) and Schon (U.S. Patent No. 4,517,137).

## **7. Grouping Of Claims**

All claims stand or fall together.

## **8. Argument**

Claims 1 to 24 and 27 to 35 satisfy each requirement of Title 35, U.S.C.

Neither Appellant's admitted state of the art, Kerns et al. nor Schon impact adversely the patentability of the claims pending herein.

Kerns et al. discloses a process and apparatus for encapsulating electrical conductors with a resinous material, such as epoxy resins. The article to be encapsulated is inserted into a mold which is then filled with a flowable

resin. The resin is then cured to form a rigid molded shell around the conductor.

An encapsulant is used to protect the exterior of the article which is encapsulated from environmental damage, or to provide a cosmetic difference to the surface of the article. In contrast, an impregnation sealant fills the pores of a porous article, thereby preventing leakage from or through that article. Since the pores are quite small, the impregnation sealant does not impact the appearance of the article.

Kerns et al. thus do not disclose, teach or even suggest either the process of or an apparatus for filling the pores of a porous article.

Establishing the Section 103 rejection in this manner demonstrates a failed attempt at satisfying a case of *prima facie* unpatentability.

There is no motivation to combine the teachings of Kerns et al. with the alleged admitted state of the art. The state of the art prior to the date of the present invention focused on processes related to the filling of pores within porous articles while Kerns et al. disclose processes directed at forming a protective/cosmetic shell around an object. Why would a practitioner skilled in the art of filling the pores of porous substances consider the teachings of a disclosure directed at *encapsulating* an object?

It is plain that the only way the Examiner could have arrived at the Section 103 rejections in their present state was to have examined the present claims using hindsight. As the Examiner is well aware, hindsight can find no place in the examination of applications for Letters Patent.

Since the process of encapsulation is directed at transforming the shape of the object being encapsulated into a form defined by the mold, to submit a porous article, already having a certain well defined form, to such a process would obviously result in an unacceptable product configuration that might be inconsistent with the function for which it was originally designed.

Such an interpretation of the disclosure of Kerns et al. is clearly inconsistent with what it actually does teach, and thus renders the reference ineffective for citation against the claims on appeal.

It is impermissible to modify a cited document of record -- here, Kerns et al. -- in a manner inconsistent with its teaching, for use in citation against claims under examination. Such modification destroys the cited document for what it fairly does teach. Such modification destroys the cited document as an effective citation as a reference

Further, the resin system of Kerns et al. must be "castable" (col. 7, line 66). To achieve this result, epoxy resins systems are preferred and such resin systems require

separation of the resin and its curing agent until just prior to application. If the epoxy system is mixed too soon before use, it will begin to polymerize resulting in premature gelation (col. 8, lines 9-31). It would have been counterintuitive for a practitioner skilled in the art of filling porous materials to even consider a resin system that adds significant complexity to their process.

There is no incentive for one skilled in the art of processing porous materials to look to the teachings of Kerns et al. to improve such processes. Again, the only way one would do so is with the benefit of hindsight -- impermissible under U.S. patent jurisprudence.

With respect to the rejection based upon the alleged admitted state of the art in view of Schon, one skilled in the art of filling porous materials would not have been guided by the teaching of Schon to make Appellant's invention.

Schon's process and apparatus are designed to fill the holes of porous solid objects such as carbon or graphite electrodes with a filler material, which is described as "pitch" or "tar". Schon refers to "other filler materials" (col. 1, line 16), provided that they "carbonize" (convert to "coke") within the pores of the object upon heating (col. 7, lines 49-50). In accordance with the teaching of Schon, "pitch" is not a polymerizable composition. Pitch is solidified, that is, "carbonized", by heating, which drives

off low molecular weight volatiles via evaporation. In contrast, Appellant's invention uses a polymerizable composition to fill the porous voids. Polymerization occurs via a chemical reaction and not through evaporative means. The polymerizable compositions used in Appellant's invention do not "carbonize" when polymerized.

The process of Schon requires a heating stage prior to impregnation in order to heat the porous material and the pitch to facilitate the impregnation of the pitch into the pores of a porous article. However, the use of a heating step in Appellant's invention prior to impregnation would partially or completely polymerize the impregnating composition, making it incapable of impregnating the pores. The impregnating composition would thus be rendered useless for its intended purpose. Therefore, the pre-impregnation heating step of Schon would defeat the functionality of an impregnation process using polymerizable compositions. As such, Schon teaches away from Appellant's claimed invention.

Schon's treatment process provides an electrode which is said to result in increased current carrying capacity, improved shock resistance and increased elasticity. In contrast, Appellant's impregnation process fills the pores of a porous article with a polymerizable composition for the purpose of sealing against leaks. These disparate objectives would fail to have lead one of ordinary skill in the art of

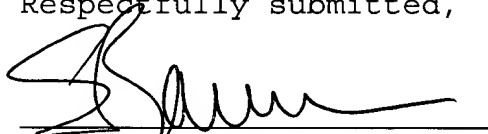


Appellant's invention to a reading of Schon. Once again, the only way to have reached this conclusion is with the invidious concept of hindsight.

9. Conclusion

Accordingly, the Board is respectfully requested to issue a decision reversing all of the outstanding rejections.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'S. Bauman', written over a horizontal line.

Steven C. Bauman  
Attorney for Appellant  
Registration No. 33,832

HENKEL LOCTITE CORPORATION  
Legal Department  
1001 Trout Brook Crossing  
Rocky Hill, Connecticut 06067

## Appendix -- Claims on Appeal

Claim 1. An impregnation process, comprising the steps of:

a.) providing at least one mobile vessel in which impregnation of a porous article can be carried out, said vessel comprising a chamber for containing a flowable polymerizable impregnating composition and at least one porous article to be impregnated;

b.) providing a series of stations defining a selection of impregnation sequences, each of said stations to perform at least one specific impregnation step on said at least one porous article within said at least one vessel, wherein said series of stations are selected from the group consisting of an impregnating composition addition station, a vacuum station, a pressure station, a centrifuge station, a reclaiming station, a retrieval station and combinations thereof;

c.) sequentially directing said at least one vessel to at least one selected station chosen from said series of stations;

d.) performing said at least one specific impregnation step at said at least one selected station; and

e.) providing a polymerization step to polymerize said impregnating composition within the pores of said porous article.

Claim 2. The impregnation process of claim 1, wherein said vacuum station includes a vacuum step to be performed on said vessel chamber to remove air from at least one porous article.

Claim 3. The impregnation process of claim 2, wherein said chamber is returned to ambient pressure to initiate impregnation of said porous article.

Claim 4. The impregnation process of claim 3, wherein said pressure station includes a pressurization step to be performed on said at least one porous article to complete said impregnation of said porous article.

Claim 5. The impregnation process of claim 1, wherein said reclaiming station includes reclaiming excess flowable impregnating composition from an exterior surface of said at least one porous article.

Claim 6. The impregnation process of claim 5, wherein said reclaiming station includes an excess flowable impregnating composition retrieval station where said reclaiming step is performed.

Claim 7. The impregnation process of claim 6, wherein said reclaiming step includes tipping said at least one vessel horizontally so as to pour said excess impregnating composition therefrom.

Claim 8. The impregnation process of claim 1, wherein said centrifuge station includes a centrifuge step to

be performed on said at least one porous article to expel excess flowable impregnating composition from an exterior surface thereof.

Claim 9. An impregnation process, comprising the steps of:

a.) providing at least one mobile vessel containing a flowable polymerizable impregnating composition and at least one porous article to be impregnated;

b.) providing a series of stations defining a selection of impregnation sequences, each of said stations to perform at least one specific impregnation step on said at least one porous article within said at least one vessel, wherein said series of stations are selected from the group consisting of a vacuum station, a pressure station, a centrifuge station, a reclaiming station, a retrieval station and combinations thereof;

c.) sequentially directing said at least one vessel to at least one selected station chosen from said series of stations;

d.) performing said at least one specific impregnation step at said at least one selected station;

e.) repeating steps c.) and d.) until said at least one porous article is impregnated with said flowable impregnating composition; and

f.) polymerizing said impregnating composition within the pores of said porous article.

Claim 10. The impregnation process of claim 9, wherein said polymerizing includes the step of transitioning said flowable impregnating composition from liquid to solid upon infiltrating a porosity of said porous article.

Claim 11. The impregnation process of claim 10, further including the step of selecting said flowable polymerizable impregnating composition from the group of curing compositions consisting of anaerobic, heat, moisture, radiation and evaporation curing compositions.

Claim 12. The impregnation process of claim 9, further comprising the step of de-aerating said flowable polymerizable impregnating composition prior to providing said flowable impregnating composition to said at least one vessel.

Claim 13. The impregnation process of claim 12, wherein said de-aeration step is executed in an independent de-aeration vessel.

Claim 14. The system according to claim 13, wherein said de-aeration vessel retains said flowable polymerizable impregnant composition therein during application of a vacuum thereon to remove air from within said flowable impregnant composition.

Claim 15. The impregnation process of claim 9, wherein said reclaiming station includes reclaiming excess

flowable polymerizable impregnation composition from an exterior surface of said at least one porous article.

Claim 16. The impregnation process of claim 15, wherein said reclaiming station includes an excess flowable polymerizable impregnating composition retrieval station where said reclaiming step is performed.

Claim 17. The impregnating process of claim 16, wherein said reclaiming step includes tipping said at least one vessel horizontally so as to pour said excess flowable polymerizable impregnating composition therefrom.

Claim 18. A system for impregnating porous articles comprising:

(a) a series of stations defining a selection of impregnated sequences wherein each of said stations performs at least one specific impregnation step for impregnating one or more porous articles, wherein said series of stations are selected from the group consisting of an impregnating composition addition station, a vacuum station, a pressure station, a centrifuge station, a reclaiming station, a retrieval station and combinations thereof;

(b) at least one mobile vessel for retaining a flowable polymerizable impregnating composition and said one or more porous articles to be impregnated, for transporting said composition and said at least one article to said series

of stations and for providing a closed environment for conducting said impregnation steps;

(c) means for directing said vessel sequentially to said series of stations; and

(d) means for polymerizing said impregnating composition within the pores of said porous article.

Claim 19. The system according to claim 18, wherein said vacuum station includes a vacuum step to be performed on said at least one porous article to remove air from porosity thereof.

Claim 20. The system according to claim 19, wherein said at least one mobile vessel sustains a vacuum applied thereon.

Claim 21. The system according to claim 20, wherein said pressure station includes a pressurization step to be performed on said at least one porous article to complete said impregnation of said porous article.

Claim 22. The system according to claim 21, wherein said at least one mobile vessel sustains a pressurization step applied thereon.

Claim 23. The system according to claim 19, wherein said retrieval station reclaims an excess of flowable impregnating composition after impregnation of said porous articles.

Claim 24. The system according to claim 19, wherein said centrifuge station includes centrifuge for expelling said excess flowable impregnating composition from an exterior surface of said at least one porous article.

Claim 27. The system according to claim 18, further comprising means for de-aerating said flowable impregnating composition.

Claim 28. The system according to claim 27, wherein said de-aerating means includes an independent de-aeration vessel.

Claim 29. The system according to claim 28, wherein said de-aeration vessel retains said flowable impregnant composition therein during application of a vacuum thereon to remove dissolved air from within said flowable impregnant composition.

Claim 30. The system according to claim 18, wherein each of said stations comprises a plurality of processing positions for accommodating multiple vessels simultaneously.

Claim 31. The system according to claim 18, wherein said directing means includes a hoist, conveyor, rails, robot, human operator, forklift or other means for transporting said at least one mobile vessel to each of said stations.

Claim 32. The system according to claim 18, wherein said directing means includes a programmable logic controller, PC based controller or other means of executing machine logic.



Claim 33. A system for impregnating porous articles, comprising:

a series of stations defining a selection of impregnation sequences wherein each of said stations performs at least one specific impregnation step for impregnating one or more porous articles;

at least one mobile vessel for retaining a flowable impregnating composition and said one or more porous articles to be impregnated,

wherein said flowable impregnating composition is an anaerobic sealant composition which requires de-aeration prior to use; said vessel being adapted to transport said composition and said at least one porous article to said series of stations; and being adapted to provide a closed environment for conducting said impregnation step;

means for directing said vessel sequentially to said series of stations; and

means for de-aerating said flowable impregnating composition.

Claim 34. The system according to claim 33, wherein said de-aerating means includes a de-aeration vessel independent of a flowable impregnant storage tank and process vessel.

Claim 35. The system according to claim 34, wherein said de-aeration vessel retains said flowable impregnant

composition therein during application of a vacuum thereon to remove dissolved air from within said flowable impregnant composition.

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Alexandria, VA 22313-1450

Date: November 3, 2003  
Signature: Mary Forcier  
Name: MARY FORCIER



LC-355/PCT/US  
PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
Steven J. Hemsan ) : Examiner: R. Blanton  
Application No.: 09/719,546 ) :  
Filed: December 22, 2000 ) : Group Art Unit: 1762  
For: MOBILE VESSEL METHOD AND ) :  
SYSTEM FOR IMPRGNATING ) :  
POROUS ARTICLES ) :  
November 3, 2003

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Mail Stop: Appeal Brief -- Patents

BRIEF ON APPEAL

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This Brief on Appeal is filed in the subject  
application, in which Claims 1 to 24 and 27 to 35 were finally  
rejected in an Office Action mailed July 15, 2003. This Brief  
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2135.

This Brief is filed in triplicate in accordance with  
37 C.F.R. § 1.192(a).

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The application is assigned to Henkel Loctite Corporation (formerly, Loctite Corporation), a Delaware corporation with its principle offices at Rocky Hill, Connecticut, USA. Henkel Loctite Corporation is jointly owned by Henkel KGaA, a German company and Henkel Corporation of America, a Delaware corporation. Henkel Corporation of America is itself wholly owned by Henkel KGaA.

**2. Related Appeals And Interferences**

At present there are no related appeals or interferences pending.

**3. Status Of Claims**

Claims 1-41 were filed in this application. Claims 25, 26 and 36 to 41 have been cancelled. The claims on appeal are thus 1 to 24 and 27 to 35.

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Subsequent to the final rejection, Claim 9 was amended and Claims 25 and 26 were cancelled. Appellant understands that the Amendment After Final Rejection dated

July 31, 2003 has been entered, as noted in the Advisory Action mailed August 15, 2003.

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The invention is defined by the claims on appeal, which are directed to an impregnation process, the steps of which comprise:

a.) providing at least one mobile vessel in which impregnation of a porous article can be carried out, with the vessel including a chamber for containing a flowable polymerizable impregnating composition and at least one porous article to be impregnated;

b.) providing a series of stations defining a selection of impregnation sequences, with each of the stations performing at least one specific impregnation step on each porous article within the vessel, where the series of stations are selected from an impregnating composition addition station, a vacuum station, a pressure station, a centrifuge station, a reclaiming station, a retrieval station and combinations thereof;

c.) sequentially directing each vessel to at least one selected station chosen from the series of stations;

d.) performing the impregnation step at one selected station; and

e.) providing a polymerization step to polymerize the impregnating composition within the pores of the porous article.

Also claimed is a system for carrying out Appellant's process.

6. Issue

Whether Claims 1 to 24 and 27 to 35 are unpatentable under 35 U.S.C. § 103(a) as allegedly being obvious over the admitted state of the art in view of Kerns et al. (U.S. Patent No. 3,529,320) and Schon (U.S. Patent No. 4,517,137).

7. Grouping Of Claims

All claims stand or fall together.

8. Argument

Claims 1 to 24 and 27 to 35 satisfy each requirement of Title 35, U.S.C.

Neither Appellant's admitted state of the art, Kerns et al. nor Schon impact adversely the patentability of the claims pending herein.

Kerns et al. discloses a process and apparatus for encapsulating electrical conductors with a resinous material, such as epoxy resins. The article to be encapsulated is inserted into a mold which is then filled with a flowable

resin. The resin is then cured to form a rigid molded shell around the conductor.

An encapsulant is used to protect the exterior of the article which is encapsulated from environmental damage, or to provide a cosmetic difference to the surface of the article. In contrast, an impregnation sealant fills the pores of a porous article, thereby preventing leakage from or through that article. Since the pores are quite small, the impregnation sealant does not impact the appearance of the article.

Kerns et al. thus do not disclose, teach or even suggest either the process of or an apparatus for filling the pores of a porous article.

Establishing the Section 103 rejection in this manner demonstrates a failed attempt at satisfying a case of *prima facie* unpatentability.

There is no motivation to combine the teachings of Kerns et al. with the alleged admitted state of the art. The state of the art prior to the date of the present invention focused on processes related to the filling of pores within porous articles while Kerns et al. disclose processes directed at forming a protective/cosmetic shell around an object. Why would a practitioner skilled in the art of filling the pores of porous substances consider the teachings of a disclosure directed at *encapsulating* an object?

It is plain that the only way the Examiner could have arrived at the Section 103 rejections in their present state was to have examined the present claims using hindsight. As the Examiner is well aware, hindsight can find no place in the examination of applications for Letters Patent.

Since the process of encapsulation is directed at transforming the shape of the object being encapsulated into a form defined by the mold, to submit a porous article, already having a certain well defined form, to such a process would obviously result in an unacceptable product configuration that might be inconsistent with the function for which it was originally designed.

Such an interpretation of the disclosure of Kerns et al. is clearly inconsistent with what it actually does teach, and thus renders the reference ineffective for citation against the claims on appeal.

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Further, the resin system of Kerns et al. must be "castable" (col. 7, line 66). To achieve this result, epoxy resins systems are preferred and such resin systems require



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There is no incentive for one skilled in the art of processing porous materials to look to the teachings of Kerns et al. to improve such processes. Again, the only way one would do so is with the benefit of hindsight -- impermissible under U.S. patent jurisprudence.

With respect to the rejection based upon the alleged admitted state of the art in view of Schon, one skilled in the art of filling porous materials would not have been guided by the teaching of Schon to make Appellant's invention.

Schon's process and apparatus are designed to fill the holes of porous solid objects such as carbon or graphite electrodes with a filler material, which is described as "pitch" or "tar". Schon refers to "other filler materials" (col. 1, line 16), provided that they "carbonize" (convert to "coke") within the pores of the object upon heating (col. 7, lines 49-50). In accordance with the teaching of Schon, "pitch" is not a polymerizable composition. Pitch is solidified, that is, "carbonized", by heating, which drives

off low molecular weight volatiles via evaporation. In contrast, Appellant's invention uses a polymerizable composition to fill the porous voids. Polymerization occurs via a chemical reaction and not through evaporative means. The polymerizable compositions used in Appellant's invention do not "carbonize" when polymerized.

The process of Schon requires a heating stage prior to impregnation in order to heat the porous material and the pitch to facilitate the impregnation of the pitch into the pores of a porous article. However, the use of a heating step in Appellant's invention prior to impregnation would partially or completely polymerize the impregnating composition, making it incapable of impregnating the pores. The impregnating composition would thus be rendered useless for its intended purpose. Therefore, the pre-impregnation heating step of Schon would defeat the functionality of an impregnation process using polymerizable compositions. As such, Schon teaches away from Appellant's claimed invention.

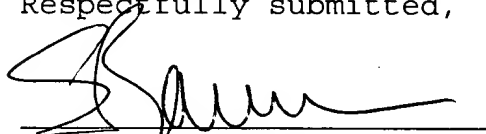
Schon's treatment process provides an electrode which is said to result in increased current carrying capacity, improved shock resistance and increased elasticity. In contrast, Appellant's impregnation process fills the pores of a porous article with a polymerizable composition for the purpose of sealing against leaks. These disparate objectives would fail to have lead one of ordinary skill in the art of

Appellant's invention to a reading of Schon. Once again, the only way to have reached this conclusion is with the invidious concept of hindsight.

9. Conclusion

Accordingly, the Board is respectfully requested to issue a decision reversing all of the outstanding rejections.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'S. Bauman', is written over a horizontal line.

Steven C. Bauman  
Attorney for Appellant  
Registration No. 33,832

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Legal Department  
1001 Trout Brook Crossing  
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### Appendix -- Claims on Appeal

Claim 1. An impregnation process, comprising the steps of:

a.) providing at least one mobile vessel in which impregnation of a porous article can be carried out, said vessel comprising a chamber for containing a flowable polymerizable impregnating composition and at least one porous article to be impregnated;

b.) providing a series of stations defining a selection of impregnation sequences, each of said stations to perform at least one specific impregnation step on said at least one porous article within said at least one vessel, wherein said series of stations are selected from the group consisting of an impregnating composition addition station, a vacuum station, a pressure station, a centrifuge station, a reclaiming station, a retrieval station and combinations thereof;

c.) sequentially directing said at least one vessel to at least one selected station chosen from said series of stations;

d.) performing said at least one specific impregnation step at said at least one selected station; and

e.) providing a polymerization step to polymerize said impregnating composition within the pores of said porous article.

Claim 2. The impregnation process of claim 1, wherein said vacuum station includes a vacuum step to be performed on said vessel chamber to remove air from at least one porous article.

Claim 3. The impregnation process of claim 2, wherein said chamber is returned to ambient pressure to initiate impregnation of said porous article.

Claim 4. The impregnation process of claim 3, wherein said pressure station includes a pressurization step to be performed on said at least one porous article to complete said impregnation of said porous article.

Claim 5. The impregnation process of claim 1, wherein said reclaiming station includes reclaiming excess flowable impregnating composition from an exterior surface of said at least one porous article.

Claim 6. The impregnation process of claim 5, wherein said reclaiming station includes an excess flowable impregnating composition retrieval station where said reclaiming step is performed.

Claim 7. The impregnation process of claim 6, wherein said reclaiming step includes tipping said at least one vessel horizontally so as to pour said excess impregnating composition therefrom.

Claim 8. The impregnation process of claim 1, wherein said centrifuge station includes a centrifuge step to

be performed on said at least one porous article to expel excess flowable impregnating composition from an exterior surface thereof.

Claim 9. An impregnation process, comprising the steps of:

a.) providing at least one mobile vessel containing a flowable polymerizable impregnating composition and at least one porous article to be impregnated;

b.) providing a series of stations defining a selection of impregnation sequences, each of said stations to perform at least one specific impregnation step on said at least one porous article within said at least one vessel, wherein said series of stations are selected from the group consisting of a vacuum station, a pressure station, a centrifuge station, a reclaiming station, a retrieval station and combinations thereof;

c.) sequentially directing said at least one vessel to at least one selected station chosen from said series of stations;

d.) performing said at least one specific impregnation step at said at least one selected station;

e.) repeating steps c.) and d.) until said at least one porous article is impregnated with said flowable impregnating composition; and

f.) polymerizing said impregnating composition within the pores of said porous article.

Claim 10. The impregnation process of claim 9, wherein said polymerizing includes the step of transitioning said flowable impregnating composition from liquid to solid upon infiltrating a porosity of said porous article.

Claim 11. The impregnation process of claim 10, further including the step of selecting said flowable polymerizable impregnating composition from the group of curing compositions consisting of anaerobic, heat, moisture, radiation and evaporation curing compositions.

Claim 12. The impregnation process of claim 9, further comprising the step of de-aerating said flowable polymerizable impregnating composition prior to providing said flowable impregnating composition to said at least one vessel. Claim 13. The impregnation process of claim 12, wherein said de-aeration step is executed in an independent de-aeration vessel.

Claim 14. The system according to claim 13, wherein said de-aeration vessel retains said flowable polymerizable impregnant composition therein during application of a vacuum thereon to remove air from within said flowable impregnant composition.

Claim 15. The impregnation process of claim 9, wherein said reclaiming station includes reclaiming excess

flowable polymerizable impregnation composition from an exterior surface of said at least one porous article.

Claim 16. The impregnation process of claim 15, wherein said reclaiming station includes an excess flowable polymerizable impregnating composition retrieval station where said reclaiming step is performed.

Claim 17. The impregnating process of claim 16, wherein said reclaiming step includes tipping said at least one vessel horizontally so as to pour said excess flowable polymerizable impregnating composition therefrom.

Claim 18. A system for impregnating porous articles comprising:

(a) a series of stations defining a selection of impregnated sequences wherein each of said stations performs at least one specific impregnation step for impregnating one or more porous articles, wherein said series of stations are selected from the group consisting of an impregnating composition addition station, a vacuum station, a pressure station, a centrifuge station, a reclaiming station, a retrieval station and combinations thereof;

(b) at least one mobile vessel for retaining a flowable polymerizable impregnating composition and said one or more porous articles to be impregnated, for transporting said composition and said at least one article to said series



of stations and for providing a closed environment for conducting said impregnation steps;

(c) means for directing said vessel sequentially to said series of stations; and

(d) means for polymerizing said impregnating composition within the pores of said porous article.

Claim 19. The system according to claim 18, wherein said vacuum station includes a vacuum step to be performed on said at least one porous article to remove air from porosity thereof.

Claim 20. The system according to claim 19, wherein said at least one mobile vessel sustains a vacuum applied thereon.

Claim 21. The system according to claim 20, wherein said pressure station includes a pressurization step to be performed on said at least one porous article to complete said impregnation of said porous article.

Claim 22. The system according to claim 21, wherein said at least one mobile vessel sustains a pressurization step applied thereon.

Claim 23. The system according to claim 19, wherein said retrieval station reclaims an excess of flowable impregnating composition after impregnation of said porous articles.

Claim 24. The system according to claim 19, wherein said centrifuge station includes centrifuge for expelling said excess flowable impregnating composition from an exterior surface of said at least one porous article.

Claim 27. The system according to claim 18, further comprising means for de-aerating said flowable impregnating composition.

Claim 28. The system according to claim 27, wherein said de-aerating means includes an independent de-aeration vessel.

Claim 29. The system according to claim 28, wherein said de-aeration vessel retains said flowable impregnant composition therein during application of a vacuum thereon to remove dissolved air from within said flowable impregnant composition.

Claim 30. The system according to claim 18, wherein each of said stations comprises a plurality of processing positions for accommodating multiple vessels simultaneously.

Claim 31. The system according to claim 18, wherein said directing means includes a hoist, conveyor, rails, robot, human operator, forklift or other means for transporting said at least one mobile vessel to each of said stations.

Claim 32. The system according to claim 18, wherein said directing means includes a programmable logic controller, PC based controller or other means of executing machine logic.

Claim 33. A system for impregnating porous articles, comprising:

a series of stations defining a selection of impregnation sequences wherein each of said stations performs at least one specific impregnation step for impregnating one or more porous articles;

at least one mobile vessel for retaining a flowable impregnating composition and said one or more porous articles to be impregnated,

wherein said flowable impregnating composition is an anaerobic sealant composition which requires de-aeration prior to use; said vessel being adapted to transport said composition and said at least one porous article to said series of stations; and being adapted to provide a closed environment for conducting said impregnation step;

means for directing said vessel sequentially to said series of stations; and

means for de-aerating said flowable impregnating composition.

Claim 34. The system according to claim 33, wherein said de-aerating means includes a de-aeration vessel independent of a flowable impregnant storage tank and process vessel.

Claim 35. The system according to claim 34, wherein said de-aeration vessel retains said flowable impregnant

composition therein during application of a vacuum thereon to remove dissolved air from within said flowable impregnant composition.